

# IDENTIFYING TOURISM POTENTIAL AND COMMUNITY PARTICIPATION INTENTION: THE CASE OF MARAI PARAI TRAIL, KOTA BELUD, SABAH

Spencer Hedley Mogindol <sup>\*,1</sup>, Nor Ardyana Edora Binti Mohd Ramli<sup>1</sup>, & Sofiana Waslin<sup>2</sup>

Universiti Teknologi MARA, Cawangan Sabah<sup>1</sup>  
Taman-Taman Sabah<sup>2</sup>

\*Corresponding Author: spenc497@uitm.edu.my

## ABSTRACT

The 5.2 km Marai Parai trail extends from Kampung Kiau Nuluh in Kota Belud, Sabah to the sloping plateau of the Marai Parai ridge of Mount Kinabalu. The Marai Parai plateau is known for its grassy vegetation. At approximately 1,652 m asl, Marai Parai can be reached by a 5–6-hour hike from Kiau Nuluh (at an altitude of 992 m asl). Information about tourism resources, services, and development issues related to the Marai Parai trail and its nearby areas (study area) is lacking. This study, therefore, aims to identify the tourism potential of the Marai Parai trail and determine the local community's interest in participating in tourism activities. A rapid ground assessment survey was conducted to identify tourism resources, challenges, and opportunities. Subsequently, a survey was conducted to gauge the community's willingness to engage in tourism. The survey covered Kiau Nuluh, Kiau Tomodu, and Kiau Taburi villages, all of which are located close to the Marai Parai trail. There are 25 attractions and activities, 21 lodging and camping operators able to accommodate up to 319 guests daily, and three tourism community organizations in the study area. Minitinduk Gorge, also known as the ancient gateway, to Mount Kinabalu, Hugh Low trail, Diba Titiu Waterfall, and Mount Nungkok are among the most iconic tourism resources. The Marai Parai trail and its nearby areas have significant tourism potential. The community highly supports tourism and recognizes the Marai Parai trail's abundant resources but is primarily concerned about its environmental impact.

**Keywords:** *Tourism Potential, Community Participation Intention, Marai Parai*

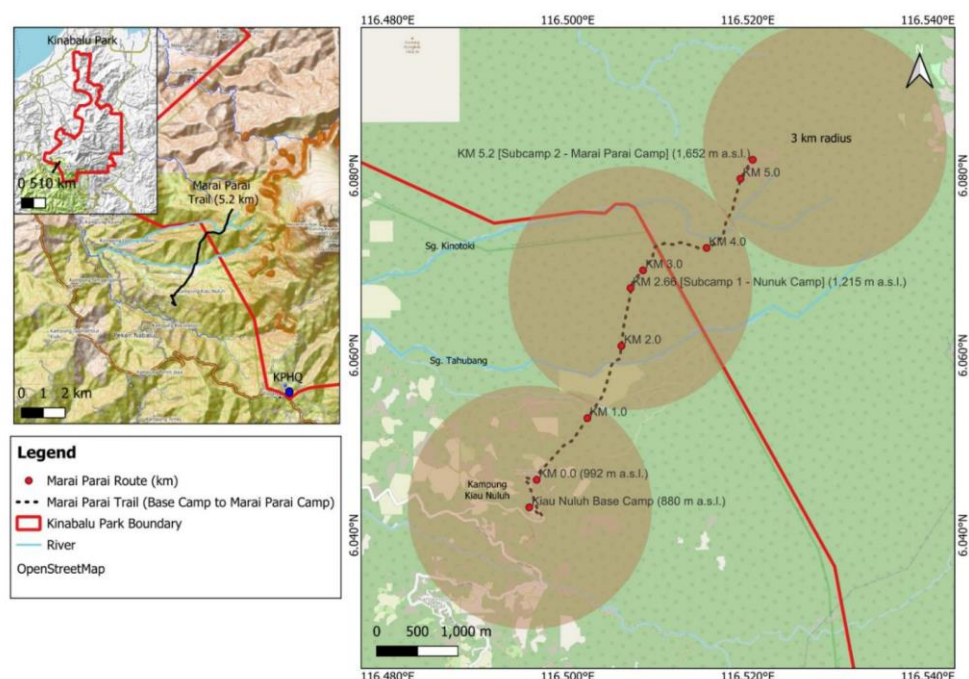
## INTRODUCTION

This paper presents the findings of a study on the tourism potential of the Marai Parai trail (i.e., the study area) and the community's intention to participate in tourism activities. The research was conducted during the Marai Parai 2023 Scientific Expedition in Kota Belud, Sabah, from October 16-20, 2023. The expedition team comprised three members from two organizations, Universiti Teknologi MARA (UiTM) and Sabah Parks.

There have been numerous scientific explorations in Marai Parai, but there is a lack of record of its tourism features, services, and development issues. This information is essential for planning and developing Marai Parai as a tourist destination. Therefore, the objectives of this study are a) to identify tourism resources, b) to identify local community participation intention in tourism, and c) to identify tourism development issues and challenges.

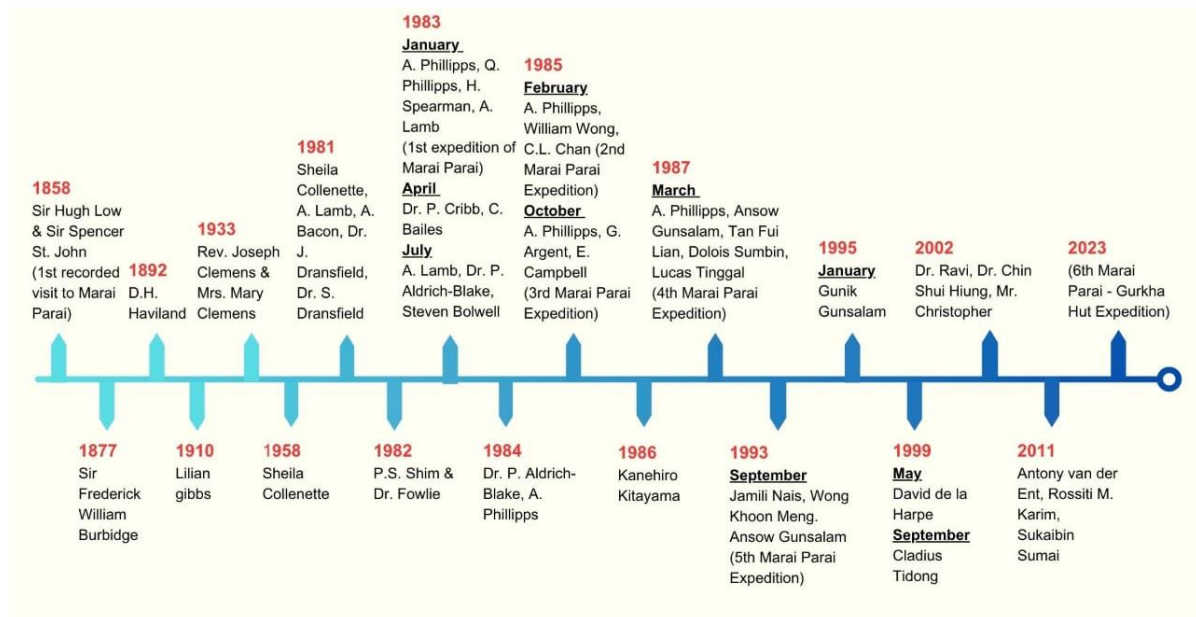
### Background of the Study Area

The term Marai Parai historically denoted a grassy area on the Marai Parai ridge of Mount Kinabalu, Sabah. The Marai Parai ridge connects the steep, bare granite slopes below Alexandra Peak at the western end of Kinabalu's summit plateau to Mount Nungkok near the southwestern boundary of Kinabalu Park (see Figure 1). Marai Parai is a sloping plateau located on the most accessible section of the ridge at an altitude of around 1,652 meters above sea level and recognizable by its grassy vegetation. It is accessible via a 5-6 hour trek from the nearest village, Kiau Nuluh Village, in the district of Kota Belud, Sabah. The local community holds the belief that the designation 'Marai Parai' originates from the resemblance noted between the prevalent grass-like plant with triangular stems, scientifically identified as *Tetraria pilisepala*, and the hill paddy cultivated by the Dusun indigenous group, referred to as 'parai'. The term 'Marai Parai' symbolizes the sight of hill paddy gracefully swaying in the gentle wind (Sabah Parks, 2023).



**Figure 1. Marai Parai Study Area**

Source: Sabah Parks (2023)



**Figure 2. Exploration History of Marai Parai**

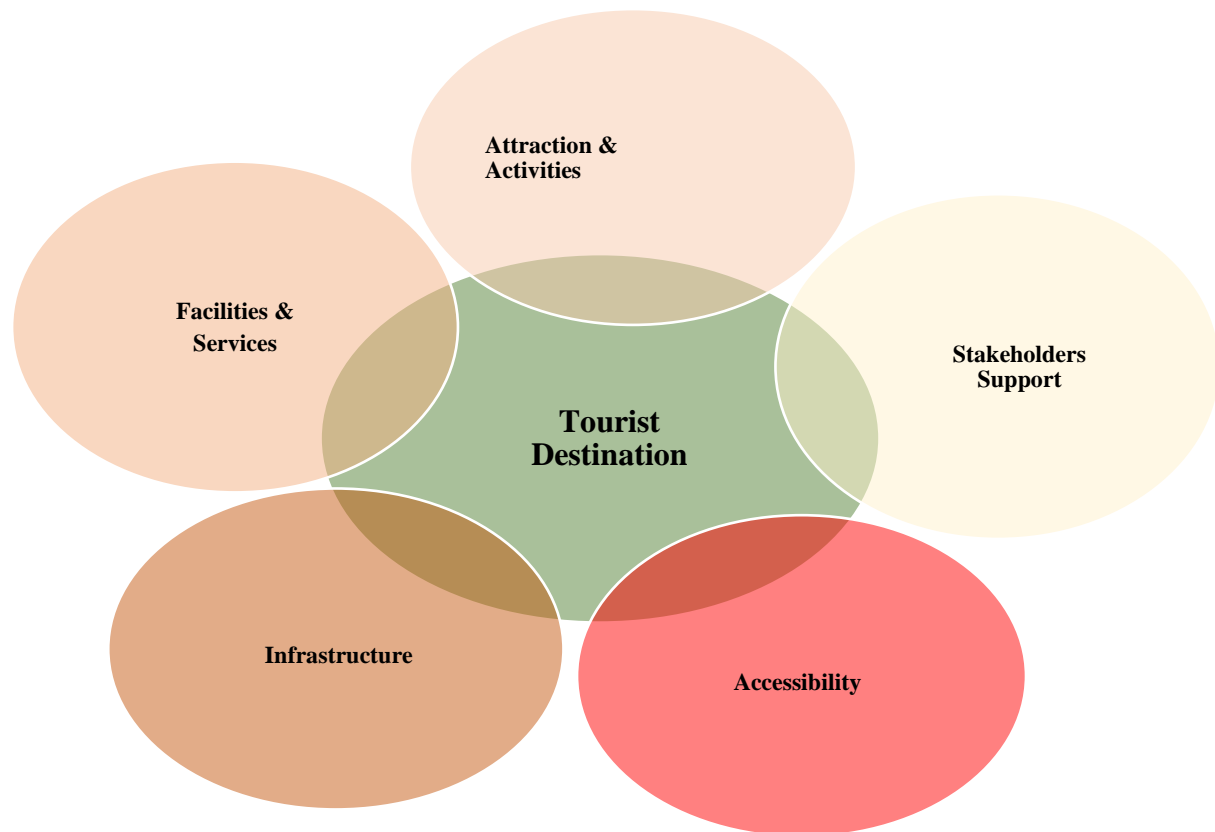
*Source: Sabah Parks (2023)*

The first known visit to Marai Parai was made in 1858 by Sir Hugh Low and Sir Spenser St John. Two other visits were recorded in the nineteenth century. In the twentieth century, there were two visits before World War II and eleven after the war. Interestingly, the first recorded expedition to Marai Parai took place in 1983. Marai Parai has been visited thrice in the twenty-first century (see Figure 2).

## Literature Review

### Tourism Potential

The concept of tourism potential revolves around resources at the destination. These resources include natural, cultural, and infrastructural elements. Tourism potential encompasses various components such as natural, man-made, cultural, historical, economic, and social aspects that define a destination's appeal to visitors or tourists. These components, along with infrastructure, facilities, and services, are essential for a destination's attractiveness to tourists (Barbu, 2014; Dincu, 2015). Similarly, Boniface et al. (2016) highlighted five key elements for a thriving tourist destination: 1) having attractions, even if it is just one unique attraction, 2) offering tourism-related facilities and services, 3) good accessibility to attractions, 4) having good infrastructure, and 5) support from tourism stakeholders (Figure 3).



**Figure 3. Tourist Destination Potential Concept**

*Source: Adapted from Boniface et al., (2016)*

Attractions are crucial in drawing visitors to a destination (Slehat, 2018; Kusen, 2010). These attractions can be natural, cultural, or man-made. Natural attractions allow tourists to experience nature, including scenic views, mountains, and wildlife. Cultural attractions allow tourists to immerse themselves in the local culture and heritage by learning about the history and traditions. Man-made attractions such as museums, theme parks, and buildings offer unique experiences (Ding et al., 2024). The success of tourist destinations relies on these attractions (Gunn, 2002). Attractions are closely tied to a destination's tourism resources and its ability to entice visitors. However, it is important to note that not all tourism resources qualify as tourist attractions, although they are indeed tourism resources. The term 'tourism resource' is synonymous with 'potential tourist attraction' (Kusen, 2010). In addition, studies by Imikan et al. (2022) and Fuente-Robles et al. (2020) identify several essential criteria for successful destinations, including having at least one unique attraction, availability of basic infrastructure, easy access to major attractions, good facilities and services, support from stakeholders, and a variety of accommodation options. Basic infrastructure, such as transportation networks, utilities, and communication systems, enhances access to the destination and provides convenience to tourism service providers and visitors. Tourism stakeholders, including the public and private sectors, local communities, and NGOs, play a vital role in developing and supporting the tourism industry (Achmad et al., 2023). Hence, assessing a destination's tourism potential is crucial to planning and developing the necessary facilities, activities, and services for its success (Bowtell, 2015).

## Community Participation

Community participation intention refers to the willingness of the local community to engage in decision-making processes, initiatives, and activities related to tourism in their neighbourhood (DaCosta & Anaman, 2016). Additionally, community participation is crucial because, with their support, tourism programs are likely to succeed as communities have the power to control local resources. In the Community-Based Tourism (CBT) context, local engagement can promote sustainable development by effectively managing operations to prevent overwhelming effects on culture and the environment (Sapkota et al., 2024; Anuar & Sood, 2017). However, the lack of knowledge about CBT can hinder community participation. Many individuals are unwilling to get involved due to a lack of awareness regarding its potential benefits. This, in turn, leads to fragmented efforts that do not align with the collaborative nature of CBT. Therefore, numerous initiatives, particularly in Malaysia, have been implemented to encourage community participation in CBT. One notable example is the Malaysia Homestay Program. The primary objective of this program is to empower rural communities by involving them in tourism-related activities, as it is believed that communities can benefit by offering cultural experiences to tourists (Kalsom et al., 2016; Selamat et al., 2022). According to a study by Sithole et al. (2021), several factors influence community motivation to participate in CBT. These factors include knowledge empowerment, local economic benefits, preservation of culture, and infrastructure development. Addressing these factors can enable stakeholders to implement key actions that enhance the quality of life for the community while ensuring tourism sustainability and equitable growth.

## METHODOLOGY

This cross-sectional study employed a mixed-method data collection approach. Initially, a rapid ground assessment was conducted to identify tourism resources in the study area, followed by a local community survey. The objective of the local community survey was to gather their perspectives on their intention to participate in tourism activities and obtain their feedback on the issues and recommendations in the study area. The community survey utilized a convenience sampling approach, employing a self-administered questionnaire. The survey form was created using Google Forms, and a hyperlink was shared with the local community residing in the villages of Kiau Nuluh, Kiau Tomodu, and Kiau Taburi in Kota Belud, Sabah, via the messaging platform WhatsApp. A total of 68 responses were collected and deemed usable for analysis. The Statistical Package for Social Sciences (SPSS) software was used to analyze the survey data. In addition, a SWOT analysis was employed to identify the strengths, weaknesses, opportunities, and threats of tourism development in the study area.

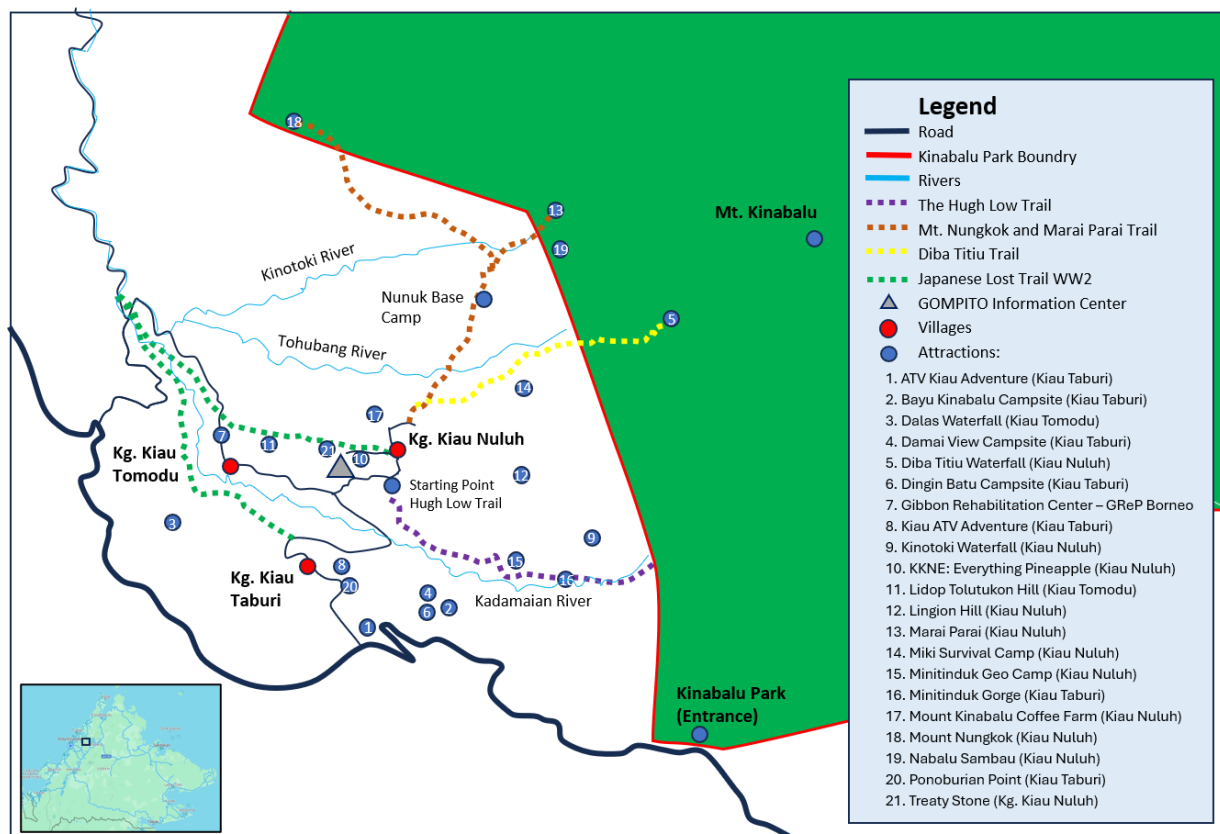
## RESULTS

### Tourism Attractions and Activities

The Marai Parai trail and its surrounding areas offer a spectrum of attractions and activities for visitors, allowing them to experience and appreciate the beauty of the destination. Table 1 and Figure 4 present the diverse attractions and activities available in the study area, specifically in Kampung Kiau Taburi, Kampung Kiau Nuluh, and Kampung Kiau Tomodu, all of which are situated close to the Marai Parai trail.

**Table 1. Attractions and Activities Adjacent to Marai Parai Trail**

Nature	Cultural	Special Types
1) Diba Titiu Waterfall (Kiau Nuluh)	10) Treaty Stone (Kg. Kiau Nuluh)	15) Miki Survival Camp (Kiau Nuluh)
2) Kinotoki Waterfall (Kiau Nuluh)	11) Japanese Lost Trail	16) KKNE: Everything Pineapple (Kiau Nuluh)
3) Minitinduk Gorge (Kiau Nuluh)	WW2 – Historical Tracks (Kiau Nuluh)	17) Mount Kinabalu Coffee Farm (Kiau Nuluh)
4) Mount Nungkok (Kiau Nuluh)	12) Traditional food	18) Kiau ATV Adventure (Kiau Taburi)
5) Lingion Hill (Kiau Nuluh)	13) Rinongkitan Kiau Embroidery	19) Dingin Batu Campsite (Kiau Taburi)
6) Nabalu Sambau (Kiau Nuluh)	14) Hugh Low Trail (Kiau Nuluh)	20) Ponoburian Point (Kiau Taburi)
7) Lidop Tolutukon Hill (Kiau Tomodu)		21) Bayu Kinabalu Campsite (Kiau Taburi)
8) Dalas Waterfall (Kiau Tomodu)		22) Damai View Campsite (Kiau Taburi)
9) Marai-Parai Trail (Kiau Nuluh)		23) ATV Kiau Adventure (Kiau Taburi)
		24) Gibbon Rehabilitation Center – GReP Borneo
		25) Minitinduk Geo Camp



**Figure 4. Attractions and Activities in the Study Area**

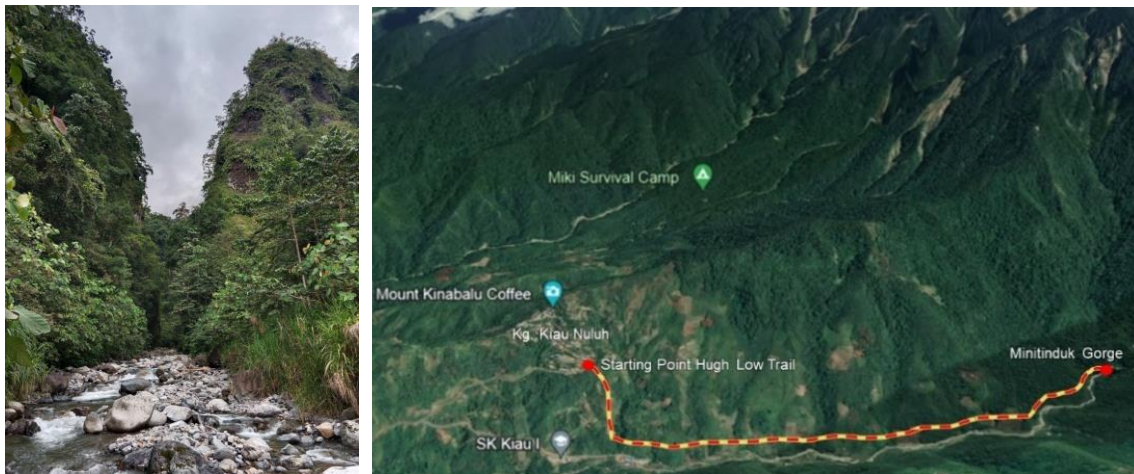
## Notable tourism resource

### Minitinduk Gorge and Hugh Low Trail

Minitinduk Gorge, also known as the Ancient Gateway to Mount Kinabalu, is located on the historic Hugh Low Trail (Figure 5). Sir Hugh Low used this trail in 1851 for his first ascent of Mount Kinabalu, with assistance from Lemaing, a resident of Kampung Kiau. Along this route, climbers pass through the agricultural land owned by the villagers, as most of the land along



the banks of the Kadamaian river is used for agriculture. Additionally, climbers and hikers on this trail face the challenge of crossing multiple rivers with slippery rocks.



**Figure 5. Minitinduk Gorge (left) and Hugh Low Trail along Minitinduk Gorge (right)**

### **Diba Titiu Waterfall and Mount Nungkok**

Diba Titiu Waterfall is one of the tallest waterfalls in the Sabah Parks area, standing at an estimated height of 300 meters (Figure 6). Additionally, there is another waterfall called Penampang Waterfall, which is located next to the Diba Titiu Waterfall. The 6-kilometer trail to Diba Titiu Waterfall from the starting point in Kampung Kiau Nuluh typically takes 3 to 4 hours to complete. The trail offers lush vegetation, breathtaking panoramas, and an opportunity to encounter fascinating forest insects.

Mount Nungkok, also known as the "Son of Kinabalu," is near Mount Kinabalu (Figure 6). The mountain is 1,652 meters tall and is part of Kinabalu Park. Climbers can encounter rafflesia flowers, orchids, and pitcher plants and enjoy a panoramic view of Mount Kinabalu. Mount Nungkok has two trailheads accessible by car in the Kiau Nuluh and Tambatuon villages. The journey from Kiau Nuluh is 3.5 kilometers one way, taking 4 to 8 hours to reach the peak. The trek to Diba Titiu Waterfall and Mount Nungkok is open to the public and managed by GOMPITO, a CBT in the area. According to GIMPOTO's records, 85 visitors in 2022 and 22 in 2023 accessed the sites.

### **Accessibility and Infrastructure**

Kampung Kiau is easily accessible and has reasonably good infrastructure. The journey from Kota Kinabalu takes about one hour and forty minutes. The roads entering Kampung Kiau are relatively narrow and steep, which limits convenient access for large vehicles. Telecommunication coverage from primary providers is generally good, although fluctuations can occur during rain or outages as the repeater towers are solar-powered. Parking is ample at most attractions, but some lack designated spaces, requiring roadside parking. Directional signages are in place and aid navigation, providing clear directions to tourist sites.



**Figure 6: Diba Titiu Waterfall (Left) and Mount Nungkok (Right)**

### **Facilities and Services**

Guas Nabalu Homestay (Kiau Nuluh) is a homestay registered with the Ministry of Tourism, Arts and Culture (MOTAC). A team of 13 homestay operators manages it, offers 29 rooms, and can accommodate up to 69 guests daily. Other accommodation providers include Tullynnau Holiday Home and D'Kiau Taburi Homestay in Kiau Taburi, and Saiheng's Cabin in Kiau Nuluh, all equipped with parking and fully-equipped kitchens, suitable for groups and families. The area also features campsites such as Dingin Batu, Bayu Kinabalu, Minitinduk Geo Camp, Damai View, and Miki Survival Camp, which can host up to 240 campers daily.

### **Tourism Stakeholders**

Tourism stakeholders play an integral role in planning, developing, organizing, and promoting tourism in the study area. The three community stakeholders in tourism work collaboratively to preserve and promote the area's diverse cultural and natural heritage. GOMPITO (an abbreviation in the Dusun language *Momogompi Tinungkusan Gulu-Gulu om Kotolunan Sandad*), established in 1999 as a non-profit organization with 124 members, is committed to safeguarding traditional and natural resources. They receive government support for community forest conservation and for developing and managing tourism activities in the study area. GOMPITO also collaborates closely with Sabah Parks to manage tourism activities within the park, ensuring sustainable tourism practices. Similarly, Eco-Tourism Kampung Kiau Taburi, founded in 2017, oversees attractions in the Kiau Taburi area. Through their guided tours, mainly to Minitinduk Gorge, visitors can enjoy immersive experiences in nature and partake in various recreational activities. Additionally, Kelab Budaya Kiau Taburi, established in 2016, is vital in cultivating cultural appreciation among young people through traditional music. Under the guidance of Mr. Katrick Sarabun, the club nurtures talent in bamboo instruments such as the *Sompoton* and *Kulintangan*. They showcase Kiau Taburi's vibrant musical heritage through performances at events. Besides the stakeholders within the community, four tourism operators are operating in the study area, namely Outback Venture, Adventoro, Amazing Borneo Tours, and River Junkie Tours. These key operators promote and operate tourism activities in the study area.



## Community Survey

### Respondents profile

Table 2 presents the demographic profile of respondents living near the Marai Parai trail. Most of them fall between the ages of 31 and 50, with males constitute the majority (66.2%) compared to females. Most (97.1%) are community residents, mainly from Kg. Kiau Nuluh. Their occupations vary and include professionals, civil servants, students, self-employed individuals, and a notable number of mountain guides and farmers.

**Table 2. Respondents Demographic Profile (n=68).**

Item		Number	%
<b>Age</b>	Under 20	4	5.9
	21-25	9	13.2
	26-30	8	11.8
	31-35	10	14.7
	36-40	10	14.7
	41-45	8	11.8
	46-50	12	17.6
	51 and older	7	10.3
<b>Gender</b>	Male	45	66.2
	Female	23	33.8
<b>A resident of the community</b>	Yes	66	97.1
	No	2	2.9
<b>Village</b>	Kg. Kiau Nuluh	35	51.5
	Kg. Kiau Taburi	23	33.8
	Kg. Kiau Tomodu	10	14.7
<b>Occupation</b>	Professional/Technical	3	4.4
	Management/Administration	1	1.5
	Businessman/Businesswoman	1	1.5
	Civil Servant	19	27.9
	Housewife	5	7.4
	Student	10	14.7
	Other - <i>Self-employed, Engineer, Farmer, Surveyor, Mountain Guide &amp; Architect.</i>	29	42.6

### Community insights of Marai Parai Trail

Table 3 presents respondents' insights on awareness, visitation, and motivations related to the Marai Parai trail. It shows that most respondents (94.1%) know the trail, while a smaller percentage (5.9%) do not. Of the participants surveyed, 47.1% have previously hiked or visited the trail, while 52.9% have not. Among those who have visited, their motivations include enjoying nature (46.2%), engaging in physical exercise (18.5%), historical interest (13.8%), cultural significance (15.4%), and various other reasons such as relaxation, curiosity, and the desire for new experiences (6.2%).

**Table 3. Community's Awareness, Visitation, and Motivation of Marai Parai Trail**

Item		Number	%
Are you aware of the Marai Parai trail?	Yes	64	94.1
	No	4	5.9
Have you hiked or visited the trail before?	Yes	32	47.1
	No	36	52.9
If you have visited the trail, what motivated your visit?	Enjoyment of nature	30	46.2
	Physical exercise	12	18.5
	Historical interest	9	13.8
	Cultural significant	10	15.4
	Other – <i>Relaxation, Curiosity, Desire to gain new experience</i>	4	6.2

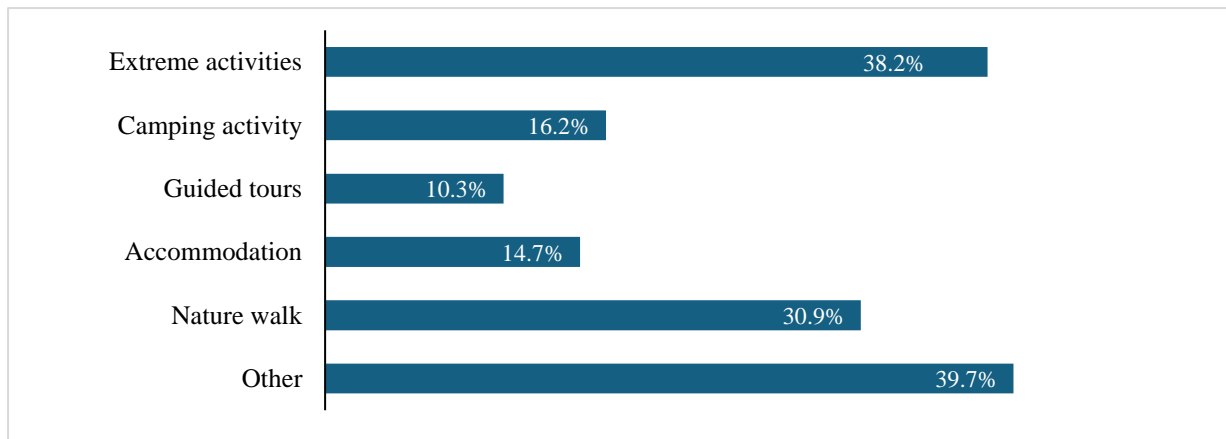
### Tourism potential and community participation intention

Table 4 presents an overview of the respondents' viewpoints regarding the appealing features of the Marai Parai trail for visitors. It highlights the attractive features of the Marai Parai trail, including its diverse flora and fauna (92.6%), scenic views (80.9%), tranquil environment (72.1%), historical landmarks (44.1%), cultural significance (38.2%), and the trail's demanding nature (11.8%). The survey also reveals a notable consensus regarding the trail's potential to attract visitors, as 97.1% affirmed its appeal. Notably, no respondents expressed any doubts regarding its appeal, and only a marginal 2.9% remained uncertain about its ability to attract visitors. In addition, respondents have expressed a broad spectrum of ideas regarding tourism activities that can be offered along the trail. These include extreme adventures (i.e. hiking, trekking, cycling, ATV, parachute, etc.) (38.2%), nature walks (30.9%), camping (16.2%), accommodations (14.7%), and guided tours (10.3%). Other potential options, a significant percentage (39.7%), have suggested various other offerings. These encompass survival skill training, historical or cultural tours, agriculture, food and beverage services, local craft demonstrations, community-based tourism initiatives, transportation services, and souvenir shops (Figure 7).

**Table 4. Tourism Potential and Community Participation Intention**

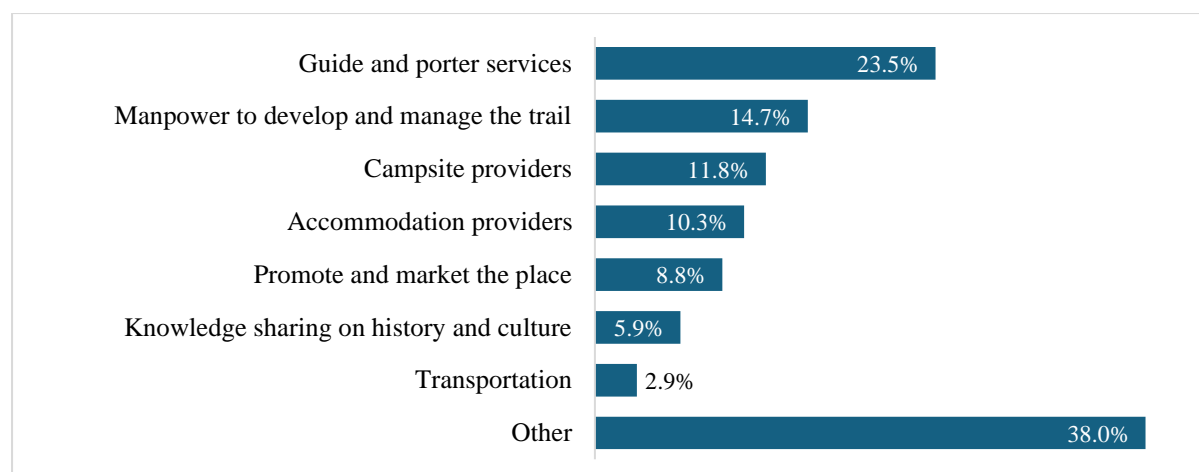
Item		Number	%
In your opinion, what are the most attractive features of the Marai Parai trail for visitors?	Scenic views	55	80.9
	Unique flora and fauna	63	92.6
	Historical landmarks	30	44.1
	Cultural experiences	26	38.2
	Peaceful environment	49	72.1
	Other - <i>Extreme and challenging trail, &amp; Weather.</i>	8	11.8
Do you think there is potential for the trail to attract visitors?	Yes	66	97.1
	Not sure	2	2.9
	No	0	0
Are you interested in participating in tourism-related activities along the Marai Parai trail?	Yes	43	63.2
	No	3	4.4
	Maybe	22	32.4

What factors would influence your decision to participate in tourism-related activities?	Economic benefits	48	70.5
	Preservation of culture and heritage	48	70.5
	Employment opportunity		
	Environmental conservation	46	67.6
	Support from the community	54	79.4
	Other - <i>Tourism trend and vacation</i>	40	58.8
		2	2.9



**Figure 7. Types of tourism-related activities that could be provided along the Marai Parai trail**

Regarding respondents' participation intention in tourism activities along the trail, 63.2% expressed interest, while 4.4% declined, leaving a notable 32.4% undecided, suggesting room for further engagement. Respondents emphasized several vital considerations when asked about the factors influencing their intention to participate in tourism-related activities along the Marai Parai trail. It is worth noting that environmental conservation (79.4%), economic benefits (70.5%), preservation of culture and heritage (70.5%), employment opportunities (67.6%), and community support (58.8%) emerged as significant influences that could shape their decision to engage in such activities. In addition, when asked what kind of roles they would be willing to play or contribute to the Marai Parai trail (Figure 8), respondents indicated that they would be very interested in various roles. They were particularly enthusiastic about guiding and portering (23.5%), providing service for trail development and management (14.7%), running campsites (11.8%), and providing lodging (10.3%). Moreover, significant interest was shown in promotion and marketing efforts (8.8%) and sharing knowledge of history and culture (5.9%). Furthermore, there was interest in transportation services (2.9%) and participation in outdoor activities such as hiking and exploration (38.0%), indicating a range of opportunities for involvement.



**Figure 8. Types of activities respondents are willing to participate in along the Marai Parai trail**

### Community's feedback on Marai Parai trail tourism development

The local community of Kiau expresses concerns regarding the Marai Parai Trail (Table 5), citing safety risks resulting from insufficient infrastructure and environmental degradation caused by unplanned development. In order to address these issues, several suggestions have been put forth, including the promotion of the trail's natural and historical attributes for tourism purposes, improvement of infrastructure, conservation of the environment, enforcement of regulations, and the active involvement of the community in decision-making processes. It is of utmost importance that collaboration between villagers and relevant authorities is established to ensure sustainable development, with the goal of benefiting both residents and visitors while preserving the trail's cultural integrity and environmental harmony.

**Table 5. Respondents' Feedback Related to Tourism Development Along Marai Parai Trail**

Issues & Concerns	
i. Safety and Infrastructure Concerns:	
• Inadequate safety measures and rescue procedures.	
• Slippery and steep trails post risk.	
• Absence of essential facilities such as huts and toilets.	
ii. Environmental Degradation and Pollution:	
• Concerns over uncontrolled development and its impact on the environment.	
• Unmanaged waste disposal and pollution.	
iii. Risk of Natural Disasters:	
• The possibility of unforeseen natural disasters increases the risks associated with hiking activities, highlighting the importance of preparedness and safety measures.	
iv. Impact of Tourism Development:	
• Uncontrolled development raises concerns about soil erosion, habitat destruction, and the endangerment of wildlife.	
• Balancing tourism interests with the preservation of local communities and the environment is a complex challenge that requires careful planning and management.	
v. Cultural Sensitivity and Respect:	
• Respecting local customs and taboos along the trails is crucial for maintaining cultural integrity and fostering positive relationships between tourists and communities.	

---

<b>Suggestions</b>	<ol style="list-style-type: none"> <li>i. Promotion and Diversification of Tourism: <ul style="list-style-type: none"> <li>• Emphasizing the natural and historical aspects of the area, a wider range of tourists can be attracted, creating a new and unique tourism product.</li> <li>• Promoting the trail as a new attraction in Kiau will increase visibility and generate more interest from visitors.</li> </ul> </li> <li>ii. Enhanced Trail Infrastructure and Facilities: <ul style="list-style-type: none"> <li>• Offering more challenging trails and activities will cater to adventure-seeking tourists and enhance their overall experience.</li> <li>• Developing necessary facilities such as huts, walkways, toilets, suspension bridges, and prayer facilities will improve safety, convenience, and accessibility for visitors.</li> <li>• Maintaining and upgrading old mountain climbing routes is essential to ensure their longevity and safety for future use.</li> </ul> </li> <li>iii. Environmental Conservation and Management: <ul style="list-style-type: none"> <li>• Controlling the number of visitors, zoning sensitive areas, and implementing environmental-friendly waste management.</li> <li>• Collaboration between villagers and government authorities is necessary to prevent encroachment on the forest reserve and ensure responsible land stewardship.</li> </ul> </li> <li>iv. Regulation and Education: <ul style="list-style-type: none"> <li>• Establishing and enforcing rules and regulations and educating hikers about prohibited actions helps minimize negative impacts on the environment and local communities.</li> <li>• Involving local experts to introduce flora and fauna habitats to tourists and providing educational materials can enhance visitors' appreciation and understanding of the ecosystem.</li> </ul> </li> <li>v. Community Engagement and Benefits: <ul style="list-style-type: none"> <li>• Involving villagers in decision-making processes and prioritizing their involvement in the trail operation and management ensures that tourism development benefits residents.</li> <li>• Giving villagers priority for the trail's employment opportunities fosters community ownership and sustainable development.</li> </ul> </li> </ol>
--------------------	--

---

## SWOT analysis

The SWOT analysis of tourism potential reveals several vital insights (see Table 6). It indicates several strengths, including its protected status within Kinabalu Park and the collaborative efforts among tourism stakeholders. The analysis also highlights Kiau's status as a diverse natural attraction. Moreover, Kiau Nuluh is recognized for its excellent governance, further enhancing its appeal for cultural programs. However, there are areas for improvement to consider, such as limited awareness of the attractions and challenging road conditions. Furthermore, competition from more popular destinations like Kundasang and Pekan Nabalu exacerbates the challenge. Nevertheless, there are numerous opportunities to explore. These include improving tourism facilities, capitalizing on the potential for agrotourism, and attracting adventure enthusiasts with new trails. By consolidating villages into a unified destination, there is the promise of mitigating competition and fostering an tourism network. However, it is important to note the threats of unregulated tourist development and the risk of natural disasters. Therefore, careful management is required to ensure sustainable growth.



**Table 6. Marai Parai's SWOT analysis**

<p><b>Strength</b></p> <ul style="list-style-type: none"> <li>● Marai Parai is a Geopark area.</li> <li>● Active involvement of tourism stakeholders with collaborations between them.</li> <li>● The Dusun community of Kiau Nuluh was recognized as the 'Centre of Excellence in Village Governance' by the Asia Indigenous Peoples Pact, making it an ideal location for a cultural learning program.</li> <li>● A popular location for hikers and adventure seekers – the area has many trails, ideal terrain for ATV and mountain biking activities, and natural attractions, i.e., rafflesia, nepenthes, and orchids.</li> <li>● Conveniently accessible by car from Kota Kinabalu.</li> <li>● It has a unique cooler climate where the temperature can drop to 14°C.</li> <li>● Knowledgeable local guides are available, i.e., many of them are mountain guides of Mount Kinabalu.</li> <li>● Home to Borneo's first Gibbon rehabilitation project (Borneo GReP).</li> <li>● Historical significance is that Sir Hugh Low's original route to Mount Kinabalu commenced from Kiau.</li> <li>● Kiau boasts many natural tourism resources, i.e., the Diba Titiu Waterfall, Marai Parai, Mountain Nungkok, and Minitinduk Gorge.</li> </ul>
<p><b>Weakness</b></p> <ul style="list-style-type: none"> <li>● Attractions and activities are not well known.</li> <li>● The road conditions in Kiau are narrow and steep, which can pose a challenge, particularly for individuals unfamiliar with the area.</li> <li>● Kundasang and Pekan Nabalu are more popular destinations than Kiau.</li> <li>● Potential challenges regarding access to the villagers' lands may arise, as most trails traverse their farms.</li> </ul>
<p><b>Opportunity</b></p> <ul style="list-style-type: none"> <li>● The Marai Parai-Gurkha Hut Mountain Trail will attract adventure enthusiasts due to its challenging route, opening up a new market.</li> <li>● The three villages have the potential to consolidate into a unified destination. This collaborative approach promotes the development of a tourism network, reduces competitive tensions among the villages, and highlights their combined natural attractions.</li> <li>● Kiau has excellent potential for agrotourism, with abundant agricultural resources such as pineapples, rubber, and coffee.</li> <li>● Upgrading tourism facilities, especially those located along hiking trails, to cater to visitors' needs can enhance their overall experience.</li> </ul>
<p><b>Threat</b></p> <ul style="list-style-type: none"> <li>● Unregulated tourist development can impact the environment.</li> <li>● Competition from neighboring destinations, such as Pekan Nabalu and Kundasang, offers similar features to Kiau but boasts superior facilities.</li> <li>● The risk of natural disasters, such as earthquakes, landslides, and watershed issues.</li> </ul>

## DISCUSSION

The Marai Parai trail, situated in the scenic highlands of Mount Kinabalu, presents significant tourism potential. This study effectively identifies key natural and cultural attractions within the Marai Parai trail, demonstrating the trail's capacity to draw ecotourists. The presence of diverse attractions, such as the Diba Titiu and Kinotoki waterfalls, Minitinduk Gorge, and the historic Hugh Low Trail, highlights the trail's appeal for nature enthusiasts and adventure seekers. The natural beauty and historical and cultural landmarks align well with the criteria for successful tourist destinations, including unique attractions, accessible infrastructure, and strong stakeholder support (Boniface et al., 2016; Slehat, 2018; Kusen, 2010).

Kampung Kiau's accessibility and the availability of facilities, such as homestays and campsites, further enhance its tourism potential. Though currently adequate, the infrastructure could benefit from improvements, particularly in safety measures and environmental management, to better support increased tourist traffic (Achmad et al., 2023; Ding et al., 2024). The study highlights the importance of these aspects, suggesting that enhancing trail infrastructure and facilities could significantly boost the destination's attractiveness and safety for visitors.

Community participation is crucial for the sustainable development of ecotourism. The study reveals the local community's strong awareness and interest regarding the Marai Parai trail. Many respondents expressed willingness to engage in tourism-related activities, motivated by potential economic benefits, cultural preservation, and employment opportunities (Sithole et al., 2021). This aligns with the broader understanding that community involvement is essential for the success of tourism initiatives, particularly in rural and ecotourism contexts (DaCosta & Anaman, 2016; Sapkota et al., 2024).

The mixed responses regarding actual visitation of the trail indicate that while awareness is high, actual engagement with the trail is less common. This suggests that further efforts are needed to convert awareness into active participation. Educational programs and community workshops could play a pivotal role in bridging this gap, empowering locals with the knowledge and skills necessary to participate in and benefit from tourism activities (Kalsom et al., 2016; Selamat et al., 2022).

The study identifies several challenges to developing tourism along the Marai Parai trail, including safety concerns, environmental degradation, and cultural sensitivity. Addressing these issues requires enhancing safety measures such as installing huts and toilets, improving trail conditions, and developing comprehensive rescue procedures. Sustainable tourism practices, such as controlling visitor numbers, proper waste management, and zoning sensitive areas, are essential to prevent environmental degradation (Fuente-Robles et al., 2020; Anuar & Sood, 2017). Additionally, educating tourists about local customs and promoting respectful interactions can help maintain cultural integrity (Sithole et al., 2021).

Community engagement is crucial for sustainable development. Involving locals in decision-making ensures that tourism development aligns with their needs and values (Bowtell, 2015). Training and support for local businesses and individuals can enhance their capacity to participate in and benefit from tourism activities (Sithole et al., 2021). By addressing these challenges through a multifaceted approach, the Marai Parai trail can attract diverse visitors while promoting sustainable development and benefiting the local community. Continued research and monitoring are recommended to adapt strategies and ensure the long-term success of tourism initiatives in the area (Imikan et al., 2022; Sapkota et al., 2024).

## CONCLUSION

This study highlights the tourism potential of the Marai Parai trail and the community's interest in engaging in tourism activities. The research has provided valuable insights into the area's tourism potential, community perspectives on tourism, and tourism development challenges. The findings emphasize Marai Parai's natural and cultural heritage, positioning it as a promising tourist destination. However, it is essential to address concerns regarding safety,

infrastructure, and environmental degradation through collaborative efforts with stakeholders and the local community. There are opportunities to create new tourism products, foster community engagement, and improve tourism infrastructure. By consolidating villages into a unified destination and leveraging their collective strengths, the study area has the potential to become a sustainable ecotourism hub. Ultimately, the success of the study area as a tourist destination relies on responsible stewardship, cultural sensitivity, and a harmonious balance between tourism development and environmental preservation. Future studies should focus on environmental impacts, community-based tourism models, economic benefits, sociocultural effects, sustainable practices, and visitor satisfaction. The study's potential limitations include a small, potentially non-representative sample size, reliance on self-reported data, and geographical specificity. Through strategic planning and coordinated action, the study area can fully realize its potential as an example of sustainable ecotourism in Sabah, benefiting both local communities and the conservation of resources.

### ACKNOWLEDGEMENT

The expedition team, consisting of three members from two esteemed organizations, Universiti Teknologi MARA (UiTM) and Sabah Parks, would like to extend our utmost gratitude to Sabah Parks for organizing the Marai Parai - Gurkha Hut 2023 Scientific Expedition. Additionally, we express our sincere appreciation to all the stakeholders who willingly participated in the survey and provided invaluable insights regarding tourism in the Marai Parai trail and nearby areas.

### REFERENCES

- Achmad, F., Prambudia, Y., & Rumanti, A. A. (2023). Improving Tourism Industry Performance through Support System Facilities and Stakeholders: The Role of Environmental Dynamism. *Sustainability*, 5(5), 4103. <https://doi.org/10.3390/su15054103>
- Anuar, A. N. A., & Sood, N. A. A. M. (2017). Community Based Tourism: Understanding, Benefits and Challenges. *Journal of Tourism & Hospitality*, 6(1). <https://doi.org/10.4172/2167-0269.1000263>
- Barbu, I. (2014). Possibilities to Increase the Leverage the Tourism Potential in Historical Regions Crisana. *Annals of the "Constantin Brâncusi" University of Târgu Jiu, Economy Series*, Band 6, 50-54.
- Boniface, B., Cooper, C., & Cooper, R. (2016). *Worldwide Destinations: The geography of Travel and Tourism* (7th ed.). Routledge.
- Bowtell, J. (2015). Assessing the value and market attractiveness of the accessible tourism industry in Europe: a focus on major travel and leisure companies. *Journal of Tourism Futures*, 1(3), 203-222.
- Dacosta, F.D., & Anaman, A. (2016). Community Participation in Tourism: Examining the Nexus of Collaboration between the Community of Mesomakor and the Management of the Kakum National Park in Ghana. *Asian journal of multidisciplinary studies*, 4(11).
- Dincu, A. (2015). Tourism Potential and its Role in the Development of Tourist Activity. *Scientific Papers: Animal Science and Biotechnologies*, 48(2), 183-186.
- Ding, D., Zheng, Y., Zhang, Y., & Liu, Y. (2024). Understanding attractions' connection patterns based on intra-destination tourist mobility: A network motif approach.

- Humanities & Social Sciences Communications*, 11(1). <https://doi.org/10.1057/s41599-024-03093-3>
- Fuente-Robles, Y. M.D.L., et al. (2020). Understanding stakeholder attitudes, needs and trends in accessible tourism: A Systematic Review of Qualitative studies. *Sustainability*, 12(24), 10507. <https://doi.org/10.3390/su122410507>
- Gunn, C. (2002). *Tourism Planning: Basics, Concepts, Cases* (4th ed.). Routhledge.
- Imikan, A. M., Ekong, N. C., & Okoroji, M. U. (2022). Assessment of Community-Based Tourism Potential and Inventory in Ikot Ekpene Senatorial District, Akwa Ibom State. *Randwick International of Social Science Journal*, 3(4), 750-762. <https://doi.org/10.47175/rissj.v3i4.556>
- Kalsom, K., & Zainuddin, N.F.A. (2016). Community-based Tourism Initiative in Rural Malaysia: Is it a Success?. *International Review of Management and Marketing*, 6(7), 242-249. <https://econjournals.com/index.php/irmm/article/view/3262>
- Sabah Parks (2023). *Scientific Expedition 7th to 20th October 2023 Marai Parai – Gurkha Hut* [Fact Sheet].
- Sapkota, K.P., et al. (2024). The Role of Local Community in Enhancing Sustainable Community Based Tourism. *Journal of Electrical Systems*, 20(7), 558-571.
- Selamat, N. H., Leng, K. S., Karupiah, P., & Azmi, Z. (2022). Resilience and Sustainability Strategies of Malaysian Homestay Program during COVID-19 Pandemic. *Malaysian Journal of Society and Space*, 18(2). <https://doi.org/10.17576/geo-2022-1802-17>
- Sithole, N., Giampiccoli, A., & Jugmohan, S. (2021). Towards a Spontaneous Community Participation Model in Community-Based tourism. *African Journal of Hospitality, Tourism and Leisure*, 10(1), 222-237. <https://doi.org/10.46222/ajhtl.19770720-97>